

WHAT IS CLAIMED IS:

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a, 1. A liquid crystal display device, comprising:

2 a liquid crystal panel having a plurality of gate and data lines and a plurality of sub-  
3 pixels, wherein the gate lines are arranged in a transverse direction and the data lines are  
4 arranged in a longitudinal direction, wherein each sub-pixel is defined by the gate and data  
5 lines and corresponds to a stripe-shaped color filter that has one of red, green, blue and white  
6 colors, a black matrix arranged among the stripe-shaped color filters;

7 a gate driver integrated circuit (IC) connected to the plural gate lines for driving the  
8 gate lines, the gate driver IC arranged on a first side portion of the liquid crystal panel; and

9 a data driver integrated circuit (IC) connected to the plural data lines for driving the  
10 data lines, the data driver IC arranged on a second side portion of the liquid crystal panel.

11 2. The device according to claim 1, wherein a stripe-shaped color filter having a white  
12 color is made of a transparent resin.

13 3. The device according to claim 1, wherein a stripe-shaped color filter having a white  
14 color is an open portion of the black matrix.

15 4. The device according to claim 1, wherein the gate driver IC alternates a polarity of a  
16 gate line driving signal for each of the gate lines at each frame interval.

17 5. The device according to claim 1, wherein the gate driver IC alternates polarities of  
18 gate line driving signals for adjacent gate lines during a same frame interval.

1 6. The device according to claim 1, wherein the data driver IC drives adjacent odd and  
2 even numbered data lines.

1 ~~7.~~ A method of fabricating a liquid crystal display device, comprising:  
2 forming a plurality of gate and data lines on a first substrate;  
3 forming a black matrix on a second substrate;  
4 forming open portions for color filters by patterning the black matrix;  
5 depositing a resin on the black matrix covering the open portions, wherein the resin  
6 has one of red, green, blue and white colors;  
7 forming color filters in the open portions by photolithography, the color filters having  
8 a stripe shape;  
9 forming a liquid crystal panel by combining the first and second substrates with  
10 interposed liquid crystal;  
11 installing data driver integrated circuits (ICs) on one side portion of the liquid crystal  
12 panel, wherein the data driver ICs drive the plural data lines; and  
13 installing gate driver integrated circuits (ICs) on one side portion of the liquid crystal  
14 panel, wherein the gate driver ICs drive the plural gate lines.

1 8. A method according to claim 7, wherein the stripe-shaped color filter having a white  
2 color is made of a transparent resin.

1 9. A method according to claim 7, wherein the stripe-shaped color filter having a white

2 color is an open portion of the black matrix.

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a2  
10.) A liquid crystal display device, comprising:

2 a liquid crystal panel, comprising,

3 a first substrate having deposited thereon a plurality of stripe-shaped color  
4 filters and a black matrix arranged around the stripe-shaped color filters, wherein each color  
5 filter has one of red, green, blue and white colors,

6 a second substrate disposed opposing the first substrate and having a plurality  
7 of gate lines arranged in a transverse direction, a plurality of data lines arranged in a  
8 longitudinal direction, and a plurality of sub-pixels each formed at an intersection of one of  
9 the gate lines and data lines, and

10 a liquid crystal material deposited between the first and second substrates,

11 wherein each sub-pixel corresponds to one of the stripe-shaped color filters;

12 at least one gate driver integrated circuit (IC) connected to the gate lines for driving  
13 the gate lines, each gate driver IC disposed on a same side portion of the liquid crystal panel;

14 and

15 at least one data driver integrated circuit (IC) connected to the data lines for driving  
16 the data lines, each data driver IC arranged on a same one of a top side portion and a bottom  
17 side portion of the liquid crystal panel.

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11. The liquid crystal display device of claim 10, further comprising at least one tape  
2 carrier package connecting the at least one data driver IC to the liquid crystal panel.

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1 12. The liquid crystal display device of claim 10, wherein each data driver IC drives  
2 adjacent odd and even numbered data lines.

10  
1 13. The liquid crystal display device of claim 10, wherein each data line is connected to a  
2 plurality of sub-pixels each corresponding to one of the color filters having a same color.

11  
1 14. The liquid crystal display device of claim 10, wherein each gate driver IC alternates a  
2 polarity of a driving signal for each of the gate lines at each frame interval.

12  
1 15. The liquid crystal display device of claim 10, wherein each gate driver IC alternates a  
2 polarity of a driving signal for adjacent gate lines during a same frame interval.

13  
1 16. A method of driving a liquid crystal panel, including a first substrate having deposited  
2 thereon a plurality of stripe-shaped color filters and a black matrix arranged around the stripe-  
3 shaped color filters, wherein each color filter has one of red, green, blue and white colors, and  
4 including a second substrate disposed opposing the first substrate and having a plurality of  
5 gate lines arranged in a transverse direction, a plurality of data lines arranged in a longitudinal  
6 direction and a plurality of sub-pixels each formed at an intersection of one of the gate lines  
7 and data lines, and further including a liquid crystal material deposited between the first and  
8 second substrates, the method comprising:

9 driving the data lines, each data line driving sub-pixels corresponding to a same one of  
10 the red, green, blue of white colors;

11 driving the gate lines, alternating a polarity of a gate line driving signal for each of the

12 gate lines at each frame interval.

- 1 17. The method of claim 16, further comprising alternating polarities of the gate line  
2 driving signals for adjacent gate lines during a same frame interval.

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